FIGURE NSH-008:1. Injection And Raised-Head Data During Heat-Pulse Flowmeter Injection Stres-Test at 4.3 GPM; Gunnison Hydrology Study; Excelsior Mining; Arizona; Borehole: NSH-008.

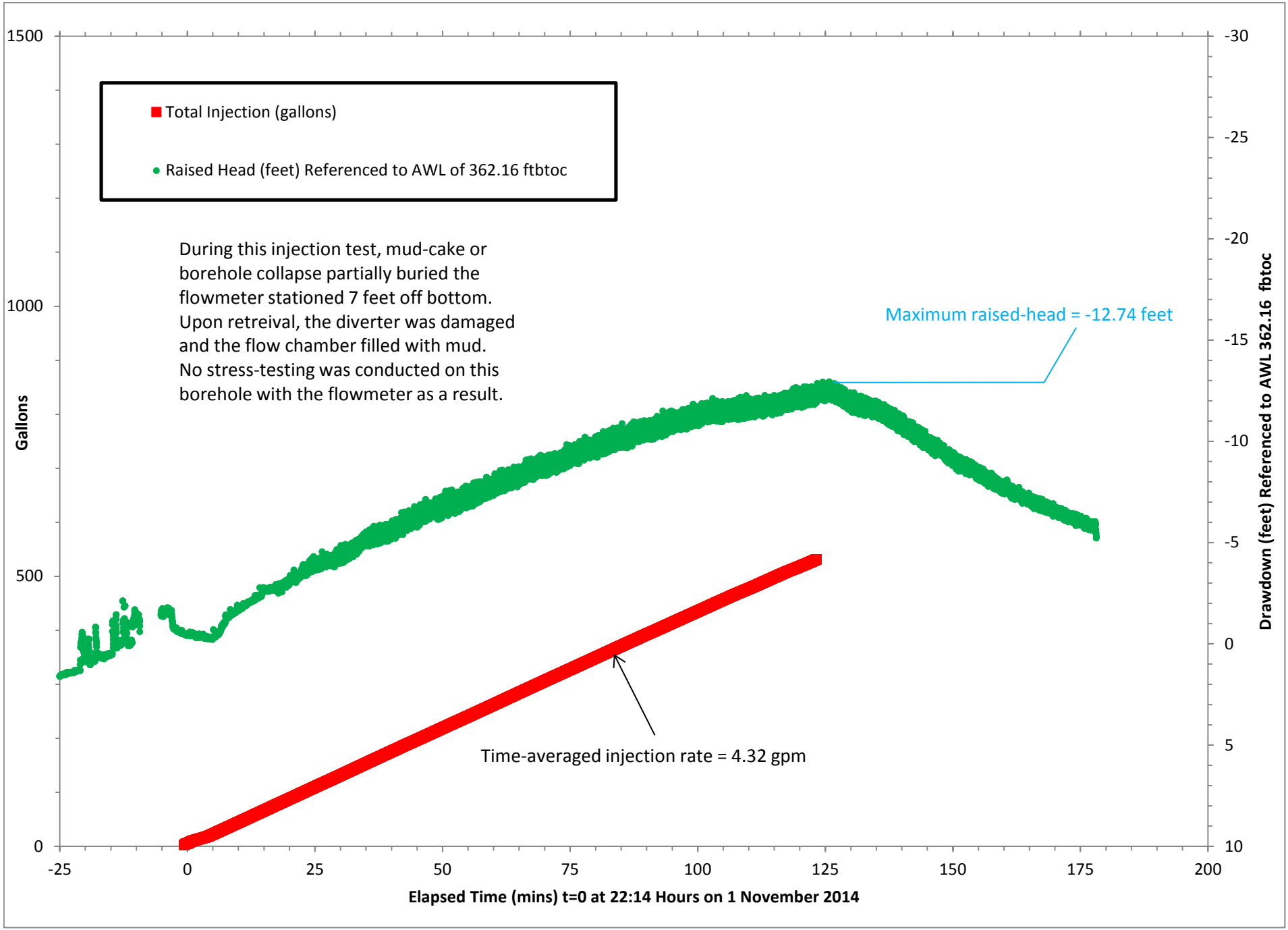

Table NSH-008:1. Summary of Heat-Pulse Flow Meter Results During Ambient Testing; Gunnison Hydrology Study; Excelsior Mining; Arizona; Borehole: NSH-008.

NSH-008: November 1, 2014					
Depth (feet)	**Depth (meters)**	**Flow in Borehole During Ambient Testing (GPM)**	**Flow in Borehole During Injection Testing (GPM)**	**Percent Flow of Total Injection (%)**	**Comments**
350.0	119.28	0.01	NA	NA	0.01 gpm exits the borehole between 350-376 ft. 0.01 gpm migrates up.
376.0	128.14	0.02	NA	NA	0.06 gpm exits the borehole between 376-417.2 ft. 0.02 gpm migrates up.
417.2	142.18	0.08	NA	NA	An additional 0.02 gpm enters the borehole and migrates up.
422.3	143.92	0.06	NA	NA	No net change in flow measured here.
437.0	148.93	0.06	NA	NA	0.06 gpm enters the borehole below here and migrates up.
487.1	166.00	0.00	NA	NA	No flow measured in borehole
513.0	174.83	0.00	NA	NA	0.20 gpm exits the borehole between 513.0 and 603.0 feet
603.0	205.50	0.20	NA	NA	An additional 0.04 gpm enters the borehole and migrates up.
625.0	213.00	0.16	NA	NA	An additional 0.07 gpm enters the borehole and migrates up.
654.0	222.88	0.09	NA	NA	0.09 gpm enters the borehole below here and migrates up.
698.2	237.95	0.00	NA	NA	No flow measured in borehole
704.0	239.92	0.00	NA	NA	No flow measured in borehole
752.4	256.42	0.00	NA	NA	No flow measured in borehole
772.3	263.20	0.00	NA	NA	No flow measured in borehole
796.0	271.28	0.00	NA	NA	No flow measured in borehole
814.0	277.41	0.00	NA	NA	No flow measured in borehole

Note: Positive flow values represent upflow in the borehole, negative valus represent downflow.
NA = Not Applicable. No test station was taken at that depth under the respective test condition.

Ambient water level (AWL) was recorded at 347.23 ftbgs on November 1, 2014 before Ambient Testing was initiated.

Additional Note: Injection was conducted at a time-averaged rate of 4.32 gpm. No flowmeter testing was conducted during injection due to a damaged diverter and mud-filled flow chamber. Upon retreival of the probe, the decision was made to end testing.

Table NSH-008:2. Summary of Heat-Pulse Flow Meter Results Under Ambient Conditions Only; Gunnison Hydrology Study; Excelsior Mining; Arizona; Borehole: NSH-008.

Well Name	NSH-008
Ambient Depth to Water (ftbtoc)	347.46
Ambient Depth to Water (ftbgs)	347.23

Diameter of Borehole (ft)	0.833
Maximum Raised Head (ft)	12.74
Effective Radius (ft)	50

Interpretation of Heat-Pulse Flowmeter Logging Results: NSH-008									
Interval No.	**Top of Interval (ft)**	**Bottom of Interval (ft)**	**Length of Interval (ft)**	**Ambient Flow[1] (gpm)**	**Darcy Velocity in Aquifer[2] (ft/day)**	**Interval-Specific Flow Rate During Injection (gpm)**	**Interval-Specific Hydraulic Conductivity[3] (ft/day)**	**Transmissivity (ft^2/day)**	**Interval-Specific Depth to Water - Vertical (ftbgs)**
1	347.2	350.0	2.8	-0.01	NA	NA	NA	NA	NA
2	350.0	370.3	20.3	-0.01	NA	NA	NA	NA	NA
3	386.1	415.0	28.9	-0.06	NA	NA	NA	NA	NA
4	418.9	422.3	3.4	0.02	NA	NA	NA	NA	NA
5	438.1	485.9	47.8	0.06	NA	NA	NA	NA	NA
6	515.0	596.4	81.4	-0.20	NA	NA	NA	NA	NA
7	604.6	618.6	14.0	0.04	NA	NA	NA	NA	NA
8	625.8	653.2	27.4	0.07	NA	NA	NA	NA	NA
9	655.5	696.0	40.5	0.09	NA	NA	NA	NA	NA

Note: Negative flow, if any, is outflow from the borehole to the aquifer, positive flow is inflow to the borehole.

[1] Ambient upward vertical flow is identified in this borehole under ambient conditions.

[2] Darcy Velocity, or Specific Discharge in aquifer, is calculated using the observed volumetric flow rate, the cross-sectional area of the flow interval in the wellbore and a wellbore convergence factor of 2.5 (Drost, 1968). The Darcy Velocity is only applicable to ambient horizontal flow.

[3] Hydraulic conductivity and transmissivity estimates are based on single well drawdown data, a porous-medium equivalent model and Hvorslev's 1951 porosity equati

NA = Not Applicable